

Date: Wednesday, 13/08/2008 10:10:20 AM
 User: Julie Lecocq

Process Sheet

Customer	: CU-DAR001 Dart Helicopters Services	Drawing Name	: AFT TUBE ASSEMBLY
Job Number	: 41192		
Estimate Number	: 10699		
P.O. Number	:	Part Number	: D3391025
This Issue	: 13/08/2008	S.O. No.	:
Prsht Rev.	: NC	Drawing Number	: D3391 REV G
First Issue	: / /	Project Number	: N/A
Previous Run	: 41191	Drawing Revision	: G
	Type : SKIDTUBES	Material	:
Written By	:	Due Date	: 28/08/2008
Checked & Approved By	: <u>08.8.13</u>	Qty:	1
Comment	: Est Rev B 06-02-07 ECN773 dwg rev. D EC	Um:	Each
	Est Rev:C 06-03-28 Update Manuf. Instructions JLM		
	est rev D 07.03.20 revF dwg EC		
	est rev E 07.11.07 rev G dwg ecn 1053p EC verified by:		
	DD		
	Est Rev:F 07-11-13 ECN 1056 DD verified by: EC		

Additional Product

Job Number:



Seq. #:	Machine Or Operation:	Description :
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1.0	D6014090	ALUMINUM EXTRUSION
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Comment: Qty.: 1.0000 f(s)/Unit Total : 1.0000 f(s)

ALUMINUM EXTRUSION

Pick:

Qty	Part Number	Description	Batch
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1	D6014-090	Extrusion	832309
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Identify as D3391-3

08.08.2010

2.0	MORI SEIKI	MORI SEIKI CNC LATHE LARGE
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**Comment:** MORI SEIKI CNC LATHE LARGE

Turn as per Folio FA599

Rev: G & Dwg D3391 Rev: AA

08.08.2010

3.0	QC2	INSPECT PARTS AS THEY COME OFF MACHINE
-----	-----	--

**Comment:** INSPECT PARTS AS THEY COME OFF MACHINE

08/08/2010

4.0	HAAS1	HAAS CNC VERTICAL MACHINING #1
-----	-------	--------------------------------

**Comment:** HAAS1-Machine as per Folio FA 599 Rev: AA & Dwg D3391 Rev: G

2-Deburr

8.F08/04/02

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

Date: Wednesday, 13/08/2008 10:10:20 AM
User: Julie Lecocq

Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41192

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

5.0

QC2

INSPECT PARTS AS THEY COME OFF MACHINE



Comment: INSPECT PARTS AS THEY COME OFF MACHINE

JP 08/09/03

6.0

QC8

SECOND CHECK



Comment: SECOND CHECK

JP 08/09/03

7.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Drill (PILOT HOLE) aft cap holes per Dwg D3391 using DT8803

AT 08-09-04

8.0

BENDING

BENDING MACHINE - SKIDTUBES



Comment: NC Bender

Form as per Dwg D3391 Using Bend Prog 3391025

AT 08-09-04

9.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 08/09/04 RD

10.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

1-Open Aft cap pilot hole to .208" as per Dwg D3391

2-Drill float bag holes using DT8809 as per Dwg D3391(Holes marked "A" Only.

3-Drill wearplate holes as per Dwg D3391 using DT8878(Mid Tube) & DT8217 Wearplate Jig.

*****Do Not Open To Finished Size*****

4-Drill Wearshoe holes as per DWG D3391 using DT8939 locating from 2 previously drilled aft wearplate holes.

5-Open wearplate holes to 0.250" and c'bore as per dwg D3391

6-Open up all wearshoe , wearplate to 0.297"and float bag holes to 0.328" as per Dwg D3391.

7-Deburr

Tools: rill

SL 8-9-5

W/O:		WORK ORDER CHANGES					
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Process Sheet

Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41192

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

11.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 00/09/09 (L)

12.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: HAND FINISHING RESOURCE #1

Acid etch and Alodine as per QSI 005 4.1

AWM 8-9-9

13.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

D H 3-9-9

14.0

D36704200

SPACER



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

SPACER

batch:

B36318

D H 3-9-9

15.0

SKIDTUBES 1

SKIDTUBESS RESOURCE 1



Comment: LANDING GEAR RESOURCE 1

Instal spacers as per dwg D3391

A/R Magnabond 6398 Batch:

M10896

exp. date:

9-10-1

cure time 12hrs as per QSI0015

H 3-9-9

16.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 00/09/15 (L)

17.0

POWDER COATING

POWDER COATING



Comment: POWDER COATING

Powder Coat White Gloss (Ref: 4.3.5.1) as per QSI 005 4.3

M108523

START TIME:

11:30pm

OVEN TEMPERATURE:

320°F

FINISH TIME:

21:00pm

JH 08-09-15 (L)

W/O:		WORK ORDER CHANGES					
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Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

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Process Sheet

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Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41192

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

18.0

QC3

INSPECT POWDER COAT/CHEMICAL CONVERSION



Comment: INSPECT POWDER COAT/CHEMICAL CONVERSION

M-h 08/09/16 (X)

19.0

D2646

Aft Cap



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Aft Cap

Pick:

Qty

Part Number Description Batch

1

D2646

Aft Cap

B32427

M-h

20.0

D35371

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

WEARPAD

B38941

M-h

21.0

D35377

Wearpad



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Wearpad

B33869

M-h

22.0

D35531

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

B31630

M-h

23.0

D35533

Gasket



Comment: Qty.: 1.0000 Each(s)/Unit Total : 1.0000 Each(s)

Gasket

B33870

M-h

24.0

D36721

Phenolic Washer



Comment: Qty.: 2.0000 Each(s)/Unit Total : 2.0000 Each(s)

PHENOLIC WASHER

B39275

M-h

25.0

ALS41032130

Insert



Comment: Qty.: 14.0000 Each(s)/Unit Total : 14.0000 Each(s)

INSERT

batch:

M105819

M-h 08/09/16 (X)

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Customer: CU-DAR001 Dart Helicopters Services

Drawing Name: AFT TUBE ASSEMBLY

Job Number: 41192

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

or equivalent per
QSI 017

26.0

ALS41032225

Insert



Comment: Qty.: 12.0000 Each(s)/Unit Total : 12.0000 Each(s)

INSERT

or equivalent

Per QSI 017

M100489

M-h

27.0

AN3C4A

BOLT



Comment: Qty.: 6.0000 Each(s)/Unit Total : 6.0000 Each(s)

Bolt

Pick:

Qty Part Number Description Batch

2 AN3C4A Bolt

M109148

M-h

28.0

AN3C5A

Bolt



Comment: Qty.: 4.0000 Each(s)/Unit Total : 4.0000 Each(s)

Bolt

M108744 M-h

29.0

AN960C10L

washer



Comment: Qty.: 10.0000 Each(s)/Unit Total : 10.0000 Each(s)

Inventory

Pick:

Qty Part Number Description Batch

2 AN960C10L Washer

M108255

M-h

30.0

HAND FINISHING1

HAND FINISHING RESOURCE #1



Comment: SMALL & MEDIUM FAB RESOURCE 1

1-Install inserts as per Dwg D3391

2-Install Aft Cap as per Dwg D3391

A/R Sikaflex-241/-291

Sikaflex expiry date:

M108801

08/10

M-h 08/09/16

(X)

Dart Aerospace Ltd

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

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Job Number: 41192

Part Number: D3391025

Job Number:



Seq. #:

Machine Or Operation:

Description :

31.0

QC5

INSPECT WORK TO CURRENT STEP



Comment: INSPECT WORK TO CURRENT STEP

S 28/11/05 (X)

32.0

PACKAGING 1

PACKAGING RESOURCE #1



Comment: PACKAGING RESOURCE #1

Identify and Stock

Location: _____

PPD

9/987

PC 4/7 (1)

33.0

QC21

FINAL INSPECTION/W/O RELEASE



Comment: FINAL INSPECTION/W/O RELEASE

08/11/10

Job Completion



MF 08-11-07

W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

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DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries

DART AEROSPACE LTD		Work Order: 41192
Description: Float Skidtube (412)		Part Number: D3391-3
Inspection Dwg: D3391	Rev: G	Page 1 of 1

FIRST ARTICLE INSPECTION CHECKLIST

☒ First Article ☐ Prototype

Drawing Dimension	Tolerance	Actual Dimension	Accept	Reject	Method of Inspection	Comments
14.000	+/-0.010	14.000	/			
3.500	+/-0.010	3.500	/			
88.93	+/-0.030	88.930	/			
44.995	+/-0.030	44.995	/			
3.200	+/-0.010	3.203	/			
1.526	+0.000/-0.030	1.516	/			
0.200	+/-0.010	.201	✓			
7.500	+/-0.010	7.504	✓			
27.750	+/-0.010	27.750	✓			
31.750	+/-0.010	31.750	✓			
35.250	+/-0.010	35.250	✓			
3.300	+/-0.010	3.295	✓			
0.200	+/-0.010					
3.520	+/-0.010	3.519	✓			
0.687	+0.010/-0.000	.687				
R0.062	+/-0.010	.062				
Ø0.484	+0.005/-0.001	.488				

Measured by: A.M. / JF	Audited by: JF	Prototype Approval:	N/A
Date: 08.08.21	Date: 08/09/23	Date:	N/A

Rev	Date	Change	Revised by	Approved
A	06.04.24	New Issue P/O D3391-015/-025	KJ/JLM	
B	06.06.19	Dwg revision update	KJ/JLM	
C	07.04.20	Ø0.208 dimension removed	KJ/JLM	
D	07.09.06	0.400 dimension removed	KJ/JLM	
E	07.11.23	Dwg Rev. updated	KJ/EC/DD	

Dart Aerospace Ltd

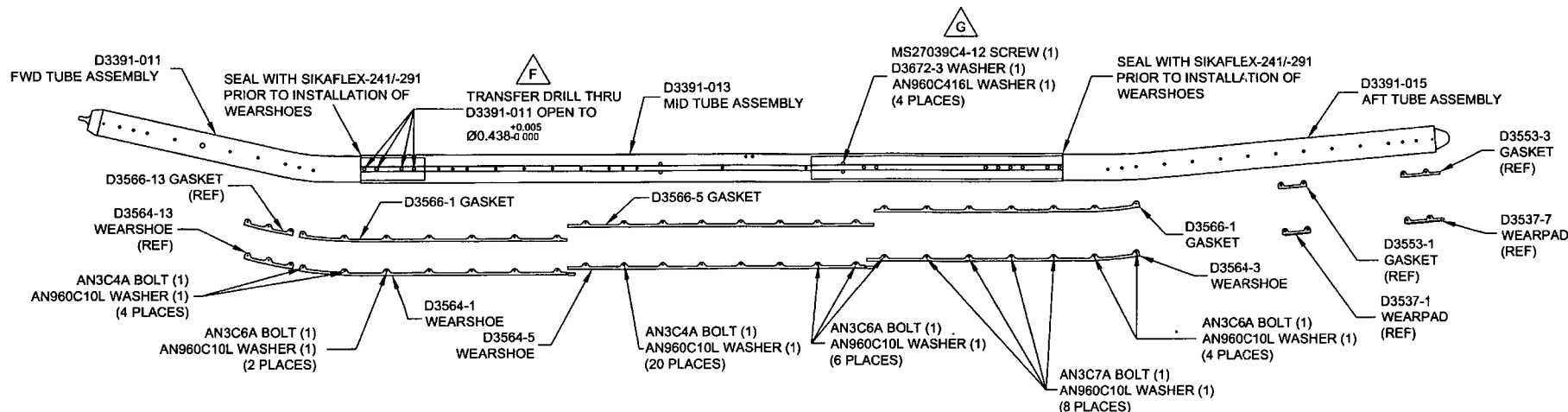
W/O:		WORK ORDER CHANGES					
DATE	STEP	PROCEDURE CHANGE	By	Date	Qty	Approval Chief Eng / Prod Mgr	Approval QC Inspector

Part No: _____ PAR #: _____ Fault Category: _____ NCR: Yes No DQA: _____ Date: _____

QA: N/C Closed: _____ Date: _____

NCR:		WORK ORDER NON-CONFORMANCE (NCR)						
DATE	STEP	Description of NC Section A	Corrective Action Section B			Verification Section C	Approval Chief Eng	Approval QC Inspector
			Initial Chief Eng	Action Description Chief Eng	Sign & Date			

NOTE: Date & initial all entries



D3391-041 ASSEMBLY

RELEASED
07-11-06

D3391-041 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
1	D3391-041	FLOAT SKIDTUBE ASSEMBLY
1	D3391-011	FWD TUBE ASSEMBLY
1	D3391-013	MID TUBE ASSEMBLY
1	D3391-015	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3566-1	GASKET
1	D3566-5	GASKET
4	D3672-3	WASHER
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER
4	MS27039C4-12	SCREW
4	AN960C10L	WASHER

GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH
AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH
LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS
OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES
FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT
WHERE INDICATED.

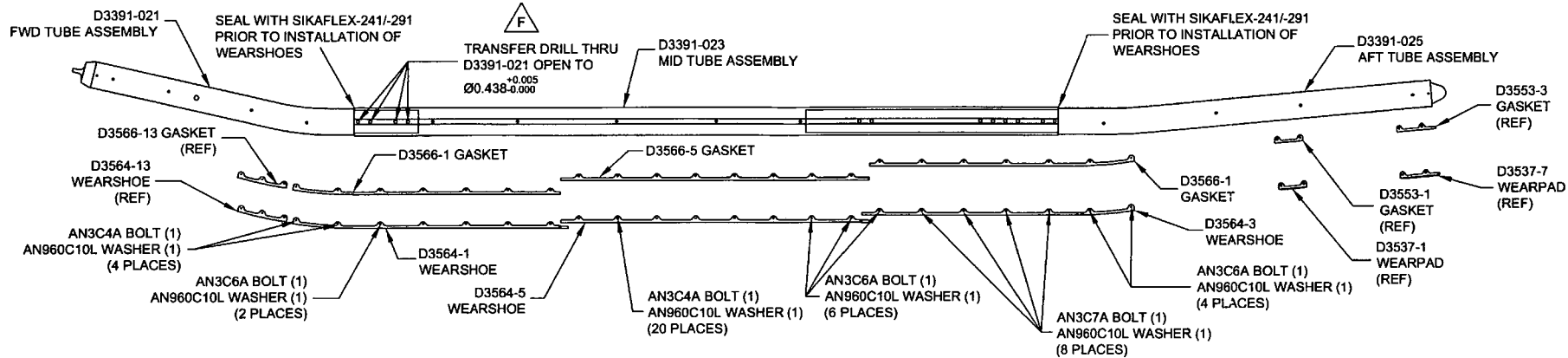
G	REPLACE NAS INSERTS W/ AELS INSERTS SWITCH TO D3670-XXXX SPACERS FOR INSTALLING FLOAT BAGS, DWG REORGANIZED FOR CLARITY	DC	07.07.31
F	ADD SS WEARSHOE, GASKET REMOVE FWJ SADDLE HOLE -011/-021	PH	07.01.18
E	CHANGE TOLERANCE, EASE MANUFACTURE	PH	06.04.25
D	UPDATE TOLERANCE, CHANGE HOLE SIZE	PH	06.01.23
C	LENGTHEN AFT EXTENSION	PH	05.09.27
B	DRAWING UPDATES	PH	05.06.10
A	NEW ISSUE	PH	05.02.07
REV.	DESCRIPTION	BY	DATE
DESIGN			
DRAWN			
CHECKED			
MFG. APPR.			
APPROVED			
DE APPR.			
DATE	07.07.31		

DART AEROSPACE USA, INC
PORT HADLOCK, WA

DRAWING NO. D3391
REV. G
SHEET 1 OF 8
TITLE 412 FLOAT SKIDTUBE
SCALE NTS

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NO WORK ORDER



D3391-043 ASSEMBLY

RELEASED
07.11.97

D3391-043 FLOAT SKIDTUBE ASSEMBLY PARTS LIST

QTY	PART NUMBER	DESCRIPTION
X	D3391-043	FLOAT SKIDTUBE ASSEMBLY
1	D3391-021	FWD TUBE ASSEMBLY
1	D3391-023	MID TUBE ASSEMBLY
1	D3391-025	AFT TUBE ASSEMBLY
1	D3564-1	WEARSHOE
1	D3564-3	WEARSHOE
1	D3564-5	WEARSHOE
2	D3566-1	GASKET
1	D3566-5	GASKET
24	AN3C4A	BOLT
12	AN3C6A	BOLT
8	AN3C7A	BOLT
44	AN960C10L	WASHER

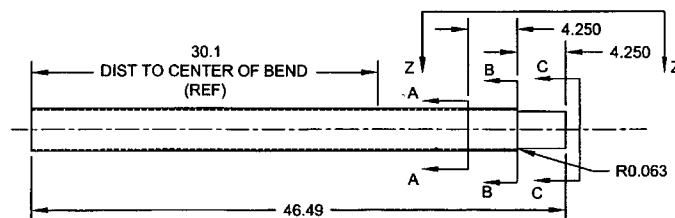
GENERAL NOTES

- 1) FINISH: CHEMICAL CONVERSION COAT PER DART QSI 005 4.1
POWDER COAT WHITE (4.3.5.1) PER DART QSI 005 4.3
- 2) SPRAY INSIDE OF TUBE WITH A COAT OF LPS LABORATORIES "LPS-3" AFTER FINISH AND AFTER INSTALLATION OF INSERTS. COAT ALL EXPOSED FASTENERS WITH LPS LABORATORIES "LPS PROCYON" AFTER FINAL ASSEMBLY, CLEAN EXCESS OFF POWDER COATING WITH MEK DEGREASER.
- 3) TOLERANCES: PER DART QSI 018 UNLESS OTHERWISE NOTED
- 4) UNITS: INCHES UNLESS OTHERWISE NOTED
- 5) USE DART DRILL TEMPLATE DT8217 TO LOCATE AND DRILL Ø0.297 SIZE HOLES FOR WEARSHOE INSERTS. C'BORE AS NOTED AND INSTALL INSERTS EXCEPT WHERE INDICATED.

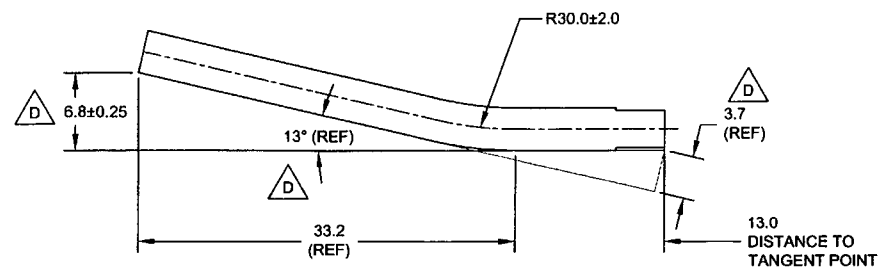
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MFG. APPR.		D3391	SHEET 2 OF 8
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DE APPR.		412 FLOAT SKIDTUBE	NTS
DATE		07.07.31	

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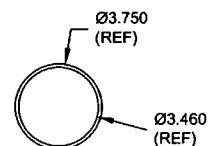
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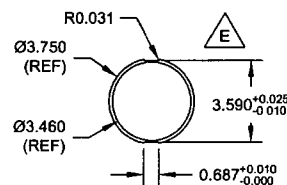
D3391-1 CUTTING DETAIL
(MAKE FROM D6013-047 SKIDTUBE MATERIAL)



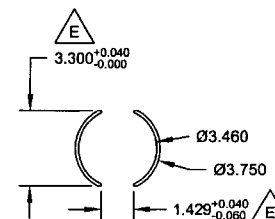
D3391-011/-021 BENDING DETAIL
(MAKE FROM D3391-1)



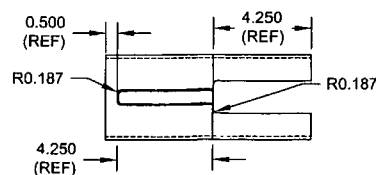
SECTION A-A
(SCALE 1:5)



SECTION B-B
(SCALE 1:5)



SECTION C-C
(SCALE 1:5)

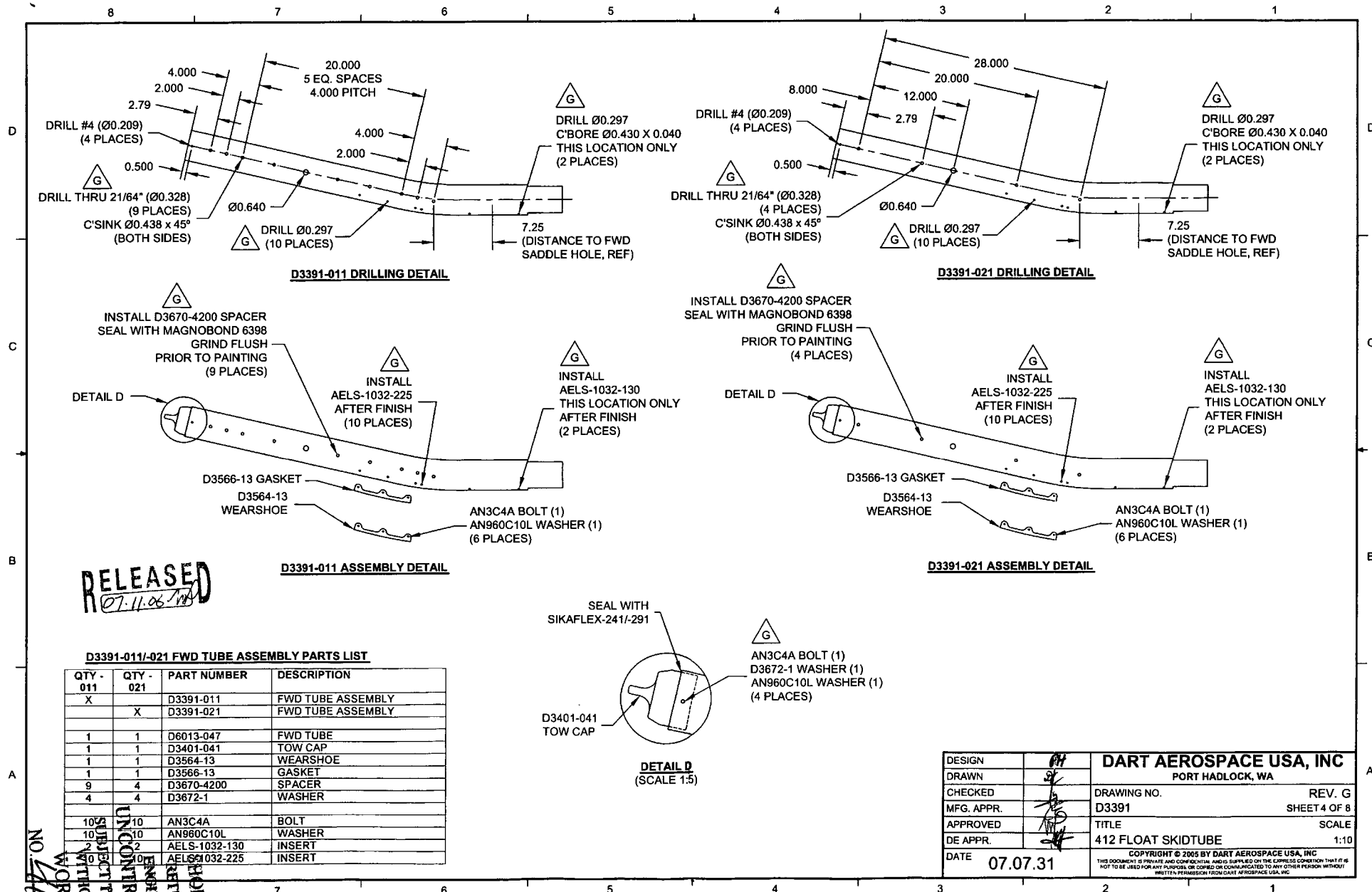


VIEW Z-Z
(SCALE 1:5)

RELEASED
07.11.08 MP

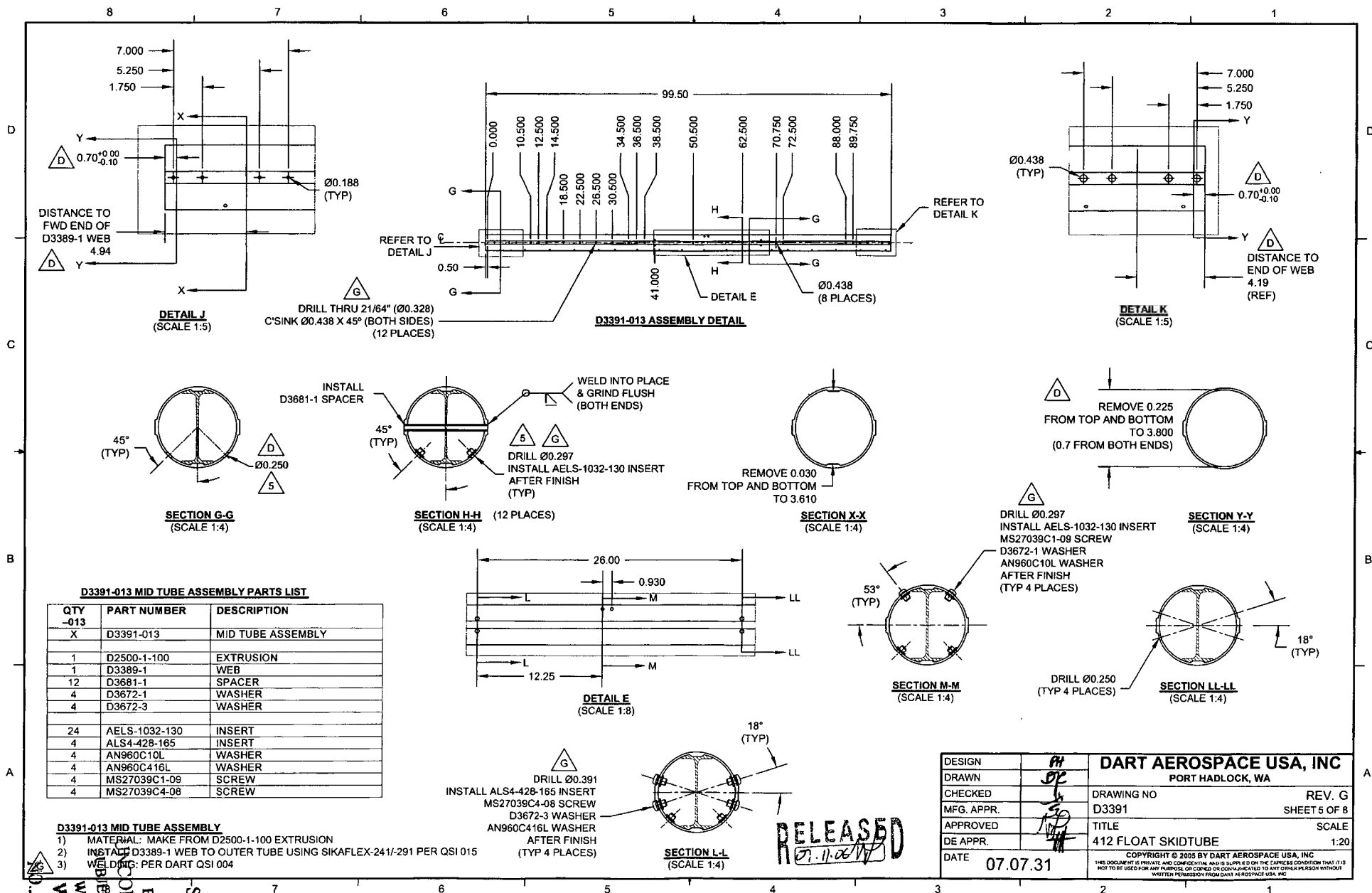
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DESIGN		DART AEROSPACE USA, INC	
DRAWN	SC	PORT HADLOCK, WA	
CHECKED		DRAWING NO. D3391	REV. G SHEET 3 OF 8
MFG. APPR.		TITLE 412 FLOAT SKIDTUBE	SCALE 1:10
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DATE	07.07.31		



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CHECKED	<i>SP</i>	DRAWING NO.	REV. G
MFG. APPR.	<i>SP</i>	D3391	SHEET 4 OF 8
APPROVED	<i>SP</i>	TITLE	SCALE
DE APPR.	<i>SP</i>	412 FLOAT SKIDTUBE	1:1
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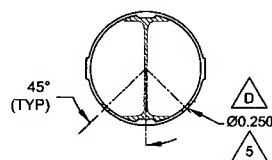
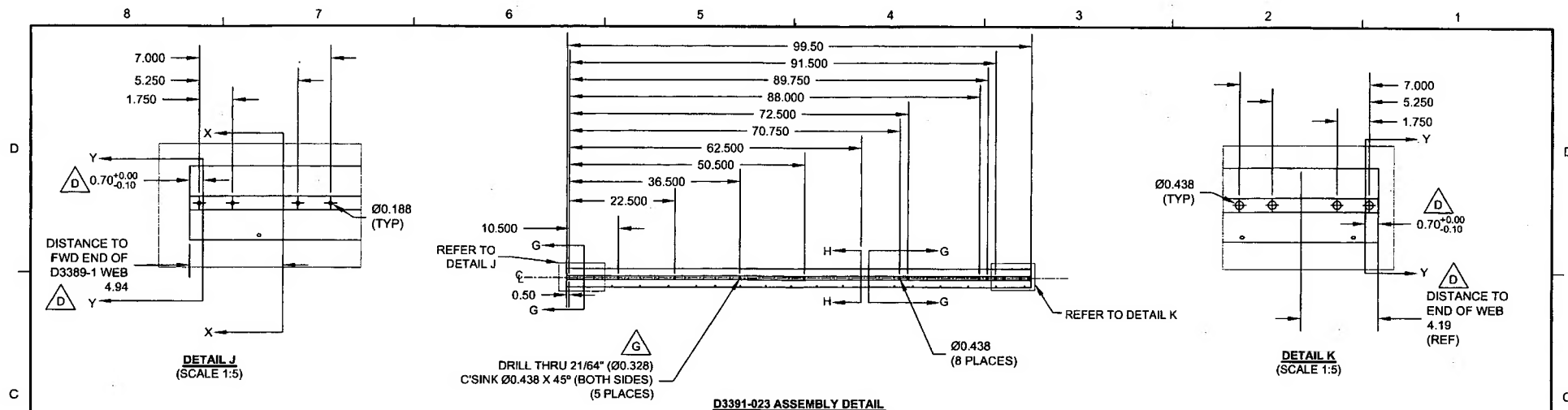


D3391-013 MID TUBE ASSEMBLY PARTS LIST

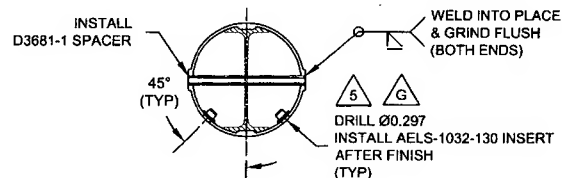
QTY -013	PART NUMBER	DESCRIPTION
X	D3391-013	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
12	D3681-1	SPACER
4	D3672-1	WASHER
4	D3672-3	WASHER
24	AELS-1032-130	INSERT
4	ALS4-428-165	INSERT
4	AN960C10L	WASHER
4	AN960C416L	WASHER
4	MS27039C1-09	SCREW
4	MS27039C4-08	SCREW

D3391-013 MID TUBE ASSEMBLY

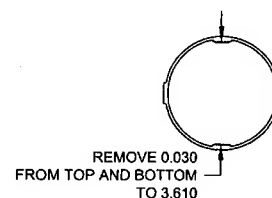
- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004



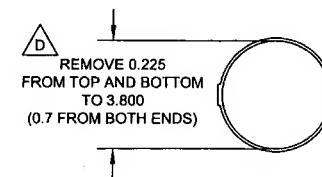
SECTION G-G
(SCALE 1:4)



SECTION H-H
(SCALE 1:4)



SECTION X-X
(SCALE 1:4)



SECTION Y-Y
(SCALE 1:4)

D3391-023 MID TUBE ASSEMBLY PARTS LIST

QTY - 023	PART NUMBER	DESCRIPTION
X	D3391-023	MID TUBE ASSEMBLY
1	D2500-1-100	EXTRUSION
1	D3389-1	WEB
5	D3681-1	SPACER
20	AEIS-1032-130	INSERT

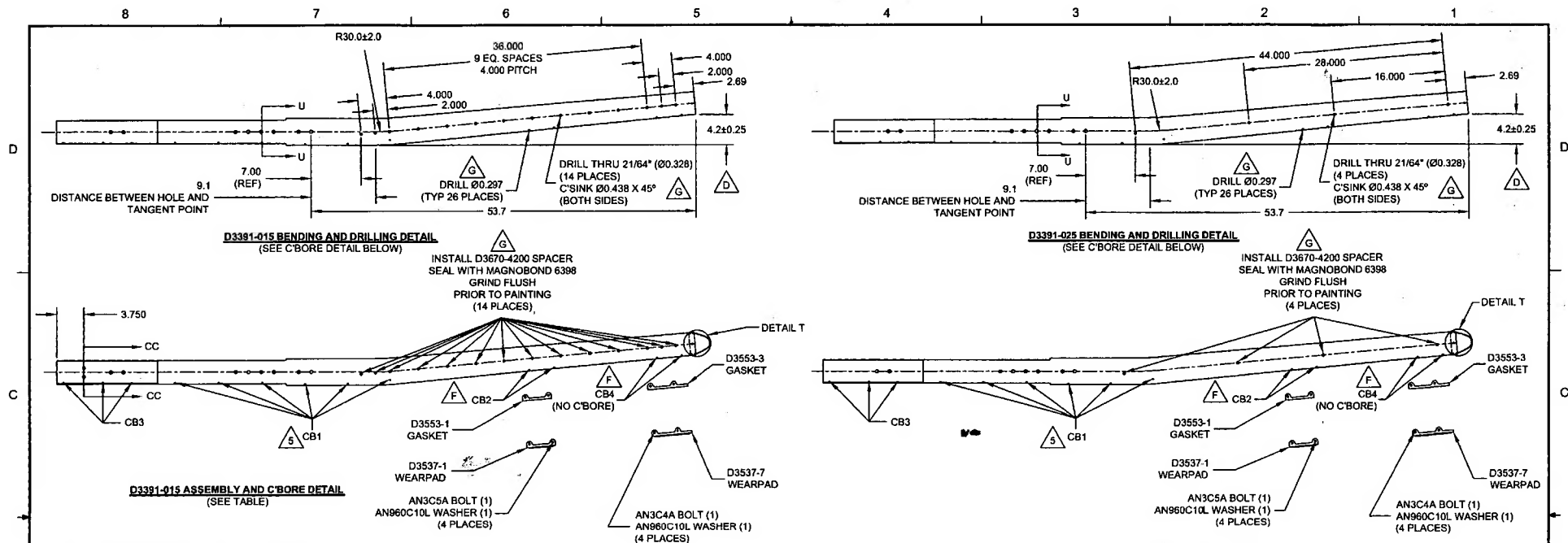
D3391-023 MID TUBE ASSEMBLY

- 1) MATERIAL: MAKE FROM D2500-1-100 EXTRUSION
- 2) INSTALL D3389-1 WEB TO OUTER TUBE USING SIKAFLEX-241/291 PER QSI 015
- 3) WELDING: PER DART QSI 004

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07.11.06/11

DESIGN	PH	DART AEROSPACE USA, INC	
DRAWN	DC	PORT HADLOCK, WA	
CHECKED	LD	DRAWING NO. D3391	REV. G
MFG. APPR.	ED	SHEET 6 OF 8	
APPROVED	TH	SCALE 1:20	
DE APPR.	TH	TITLE 412 FLOAT SKIDTUBE	
DATE	07.07.31	COPYRIGHT © 2005 BY DART AEROSPACE USA, INC	
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D3391-015/-025 AFT TUBE ASSEMBLY PARTS LIST

QTY - 015	QTY - 025	PART NUMBER	DESCRIPTION
X	X	D3391-015	AFT TUBE ASSEMBLY
		D3391-025	AFT TUBE ASSEMBLY
1	1	D6014-090	AFT TUBE
1	1	D2646	AFT CAP
1	1	D3537-1	WEARPAD
1	1	D3537-7	WEARPAD
1	1	D3553-3	GASKET
1	1	D3553-3	GASKET
14	4	D3670-4200	SPACER
2	2	D3672-1	WASHER
14	14	AELS-1032-130	INSERT
12	12	AELS-1032-225	INSERT
4	4	ALS4-428-165	INSERT
6	6	AN3C4A	BOLT
4	4	AN3C5A	BOLT
10	10	AN960C10L	WASHER

C'BORE HOLES MARKED CB1-CB4 AS FOLLOWS AND
INSTALL AELS-1032-XXX AFTER FINISH AS NOTED

HOLES MARKED	QTY D3391-015	QTY D3391-025	C'BORE	P/N
CB1	12	12	Ø0.430 X 0.170	AELS-1032-225
CB2	4	4	Ø0.430 X 0.170	AELS-1032-130
CB3	6	6	Ø0.430 X 0.040	AELS-1032-130
CB4	4	4	NONE	AELS-1032-130

RELEASED
07.11.06

DESIGN	PH	DART AEROSPACE USA, INC
DRAWN	DL	PORT HADLOCK, WA
CHECKED	S	DRAWING NO. REV. G
MFG. APPR.	S	D3391 SHEET 8 OF 8
APPROVED	S	TITLE SCALE
DE APPR.	S	412 FLOAT SKIDTUBE 1:12
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